and it is quite certain that only from the immense collections at the Arnold Arboretum could the data for it have been derived.

Intelligent amateurs, curators of botanical garden collections, gardeners, professional nurserymen, and landscape architects will all be forever in Mr. Rehder's debt. For there is no other book in its field, and it would be difficult to think of a better one.

It naturally invites comparison with Professor Bailey's "Manual of Cultivated Plants," issued by the same publishers. Actually the two books complement each other. One includes those garden plants relatively common in American gardens, while the Rehder book takes all the cultivated woody species within his area, excluding the tropics and warm temperate regions. The completeness of the book may be gauged perhaps by such statements as these: In the new book *Rosa* contains 72 species; *Picea*, 32; *Viburnum*, 45; *Berberis*, 49; *Salix*, 63; *Quercus*, 58; and *Rhododendron* (including *Azalea*) 62. The other genera are treated in an equally comprehensive way, and there are keys to the families, to the genera, and, of course, to the species under each genus. Notes on varieties, on hardiness within the eight different climatic zones the author recognizes, on the year introduced into cultivation, and copious citations to illustrations, together with a seventy-page three-column index make the book a perfectly incomparable store-house of information on the woody plants cultivated in America. Bibliographically the book is what one would expect from the author of the monumental Bradley Bibliography. It quite naturally follows the Vienna Code of nomenclature, and the generic and family concepts that we have come to associate with that code.

Norman Taylor

Brooklyn Botanic Garden

PROCEEDINGS OF THE CLUB

Meeting of January 26, 1927

This meeting was held at the Museum Building of the New York Botanical Garden and was called to order at 3:30 P. M. Mrs. Arabella Ogden McKee, 78 Morningside Drive, N. Y. C., was elected to membership in the Club. The following resignations were accepted:

Mr. Rudolph A. Konnerth, 7541—113 St., Forest Hills, L. I.

Mr. Leland S. Smith, Nevada City, California.

Mr. Wm. H. Zaun, 22 Queen Esther Court, Ridgefield Pk., N.J.

Dr. Barnhart, Chairman of the Budget Committee, submitted the following estimates for 1927:

Estimated Income		*Estimated Outgo*	
Membership dues	$1,525.00	Bulletin	$2,000.00
Bulletin	1,100.00	Editor (Bull.)	100.00
Torreya	150.00	Torreya	500.00
Memoirs	50.00	Index cards	600.00
Index cards	800.00	Treasurer	150.00
Interest	170.00	Bibliographer	175.00
Advertisements	100.00	Sundries	125.00
	$3,895.00		$3,650.00
		Bulletin and Memoirs (from surplus)	600.00
			$4,250.00

As delegate for 1926 from the Club to the Council of the N. Y. Academy of Sciences, Dr. Barnhart reported that he had represented the Club as usual at the meetings of the Council.

Progress reports were made by the Secretary in the matters of proposed affiliation with the A. A. A. S. and of the revision of the Constitution.

For the scientific part of the program Dr. Bessie Goldstein of Columbia University gave a paper on "The X-bodies associated with the mosaic disease of tobacco and dahlia." Her abstract follows:

"Intracellular bodies have been found associated with a great many of the filterable virus diseases of animals and plants. Among the animal virus diseases, there are the Guarnieri bodies associated with smallpox, the Negri bodies in rabies, the intranuclear bodies in herpes, the intracellular bodies in trachoma, hoof and mouth disease of cattle, etc. Among plants, such intracellular bodies are described as associated with the mosaic disease of corn, sugar cane, Fiji disease of sugar cane, mosaic disease of tobacco, apple of Sodom, and dahlia, wheat rosette, Hippeastrum mosaic, etc.

These bodies, in spite of their large size, may very well be living amoeboid organisms which because of their great plasticity can pass through so-called anti-bacterial filters. I have found these bodies distinctly associated with the mosaic diseases of tobacco and dahlia. They occur in all the tissues of the leaf primordia, the growing points, older blotched leaves, and in tobacco I have found them in the stem, and roots. The X-bodies, as I call these intracellular bodies, give very clear evidence that they are not mere degeneration products of the cell protoplasm. They show a structure very much like that of protoplasm. They are rounded, oval, or amoeboid in form. They show a definite indication of flowing and elongation movements in the form of pseudopod-like extensions of the body surface. Structures resembling nuclei and vacuoles are present within these bodies. They are found in all stages of what appears to be division by constriction, including such interesting forms as those in which the two divided halves of the body proper have become rounded up within a clear space, the stretched and constricting portion of what appears to be a membrane remaining still unbroken between them. They are distributed to the daughter cells upon the division of the host cell, and spread through the growing regions of the plant at least, by this method."

Arthur H. Graves,
Secretary.

Meeting of February 8, 1927

This meeting was held at the American Museum of Natural History and was called to order by President Richards at 8:15 p. m.

Mr. Raymond Adolph, of Interstate Park, Bear Mountain, N. Y., and Miss Clyde Chandler, of Columbia University, Johnson Hall, 411 West 116th Street, New York City, were unanimously elected to membership. The resignation of Dr. L. J. Pessin was accepted.

The secretary read an invitation from the American Philosophical Society to the Torrey Botanical Club to be represented at the 200th anniversary of the founding of the Society by Benjamin Franklin, to be held April 27, 28, 29 and 30, 1927. By vote of the Club, the president was authorized to appoint a delegate to attend.

Dr. Arthur P. Kelley, of Rutgers University, addressed the Club on "Plant communities of the Medicine Bow Mountains in Wyoming".

The Medicine Bow Mountains lie in south-eastern Wyoming, within the borders of the Medicine Bow National Forest, and are accessible by an excellent auto road from Laramie. The historic Overland Trail skirts their base, and Fort Laramie, famous during Indian days, is nearby. Rising sharply, a great meta-quartzite ridge towers to 12,000 feet elevation above sagebrush plains; in reality the great mountain mass consists of an elevated plateau or mesa upon which rises the final ridge, caused by a great fault scarp.

Upon this mountain mass are communities of plants which exist in more or less definite zones according to elevation. The elevation, of course, influences climate, for at the base the scanty rainfall supports but sagebrush and cactus while at the summit snow lies the year round. In between are two zones, the lower of which is more arid and is clothed with pines, the upper more rainy and clothed with spruce. Thus we may distinguish alpine, sub-alpine, montane and plain communities.

Within these larger communities are smaller and still smaller ones; and these go through a regular process of development or succession. Thus a lake is gradually invaded by sedges until a meadow is formed, starred with blossoms, and the lake is gone; and the meadow becomes dotted with spruce trees which grow up into a forest. In each zone which has a definite climate the plant communities go through such a succession and end with one which we might call a climax. Thus the climax stage of the alpine zone is a scrubby juniper community, the junipers being shorn by the storms to a dwarf form so thickly branched that one may walk on top of them as on a lawn. The alpine communities are especially attractive because of the curious plants growing in crevices of the rocks, quickly blossoming in the few weeks of summer. Their colorings are marvelous—blue, purple, gold, cream, and purest white.

Arthur H. Graves,
Secretary.

Meeting of February 23, 1927

This meeting was held at the Museum Building of the New York Botanical Garden, and was called to order at 3:30 p. m. with Dr. Barnhart as Chairman.

Dr. Susan P. Nichols of Oberlin College, Oberlin, Ohio, was unanimously elected to membership in the club. The resignation of Mr. Edward D. Lehrer of Brooklyn was accepted.

A report on the revision of the constitution was presented by Mr. B. R. Abbott.

As a result of this report the following committee was appointed by vote of the Club to carry through the matter of revision of the constitution in accordance with the findings of this report, said committee to report at the next Wednesday meeting of the Club: Dr. M. A. Howe, Dr. J. H. Barnhart, Mr. B. R. Abbott, Dr. Arthur H. Graves.

The scientific part of the program consisted of an address by Dr. Alfred Gundersen entitled "A visit to European Botanic Gardens."

After some weeks in the mountains of Norway, Dr. Gundersen visited eighteen botanical institutions in Scandinavia, Germany, Switzerland, France and England. The botanic garden of Oslo was founded a little more than a century ago; it contains many large trees with a considerable range of species. In the Copenhagen garden, covering about thirty acres in the city, much attention is given to systematic botany. A special section is devoted to the Danish Flora. The forest school garden at Charlottenburg, north of Copenhagen, is notable for its fine collection of evergreens. The Berlin garden was moved about twenty years ago to its present location in Dahlem. Here, numerous artificial mountains, developed as rock gardens, show the vegetation of different geographical regions. About sixty regions are represented. Another large area is devoted to the arboretum, and a third to the "Systematic Section," containing herbaceous plants only. The Munich collections were very impressive, expecially those of the conservatories. While a few other gardens had larger collections, none exceeded this one in the matter of artistic effects and beautiful arrangement. One large house was devoted to water plants. There was also a considerable collection of named liverworts. The gardens of Zürich, Berne and Lausanne

were situated in the cities and of comparatively small size. Zürich has a very extensive botanical library.

The French National Arboretum des Barres at Nogent-sur-Vernisson contains extensive collections of trees and shrubs, especially a large number of evergreens, including numerous species not hardy in Brooklyn.

The Paris botanic garden, like many others, has suffered from the effects of the war. Nevertheless the collections were very extensive and of great historical interest because of the many famous botanists who have worked there. Before crossing to England a stop was made in Caen, in Normandy. In the interesting botanical institute here, special attention is given to the plants of Madagascar.

Two weeks were spent at the Royal Botanic Gardens in Kew. The numerous large trees have abundant room for development in the spacious grounds. The collections of tropical and subtropical plants give an impression of very great variety. These are supplemented by the various museums. In the herbarium the genera are arranged approximately according to the Bentham and Hooker system, the species under the genera by eighteen geographical divisions; Europe, Siberia, Mediterranean region, etc.

After a stormy passage across the North Sea the Gothenburg botanic garden was visited. This is new and situated among rocky hills well outside the city, it has an unsurpassed natural location.

Arthur H. Graves,
Secretary.

NEWS NOTES

At the recent International Flower Show at the Grand Central Palace, New York City, March 21–26 the Boyce Thompson Institute of Plant Research had an exhibit showing the results of some experimental work with plants. An exhibit showing two plants of the same kind and age, one having grown with twelve hours of light a day and one with twenty-four hours of light, attracted much attention.

An exhibition from the Brooklyn Botanic Garden of epiphytes and house plants included orchids, bromeliads, aroids and ferns.